

Appl. No. 10/662,029
Amdt. Dated June 28, 2007
Reply to Office Action of May 17, 2006

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REMARKS

Claims 1, 7, and 8 are amended hereby to particularly set forth that "the triangle wave voltage signal only consists of odd harmonics ...", instead of "the triangle wave voltage signal only comprises odd harmonics", as previously set forth in such claims. Since Applicant previously expressed "only comprises" in such situations, it was clear in the prior version of such claims that Applicant intended for the claims to be limited to odd harmonics. Accordingly, Applicant respectfully submits that no new issues are hereby raised by the present amendment.

35 USC §102 Rejections

Claims 1, 2, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by AAPA (Applicant's admitted Prior Art).

In response to this rejection, Applicant has amended claims 1, 7 and 8, and respectfully traverses the rejection and submits that the rejected claims are in condition for allowance in their current form.

Amended claim 1 recites in part:

"A pulse width modulation current adjustment apparatus,
comprising:

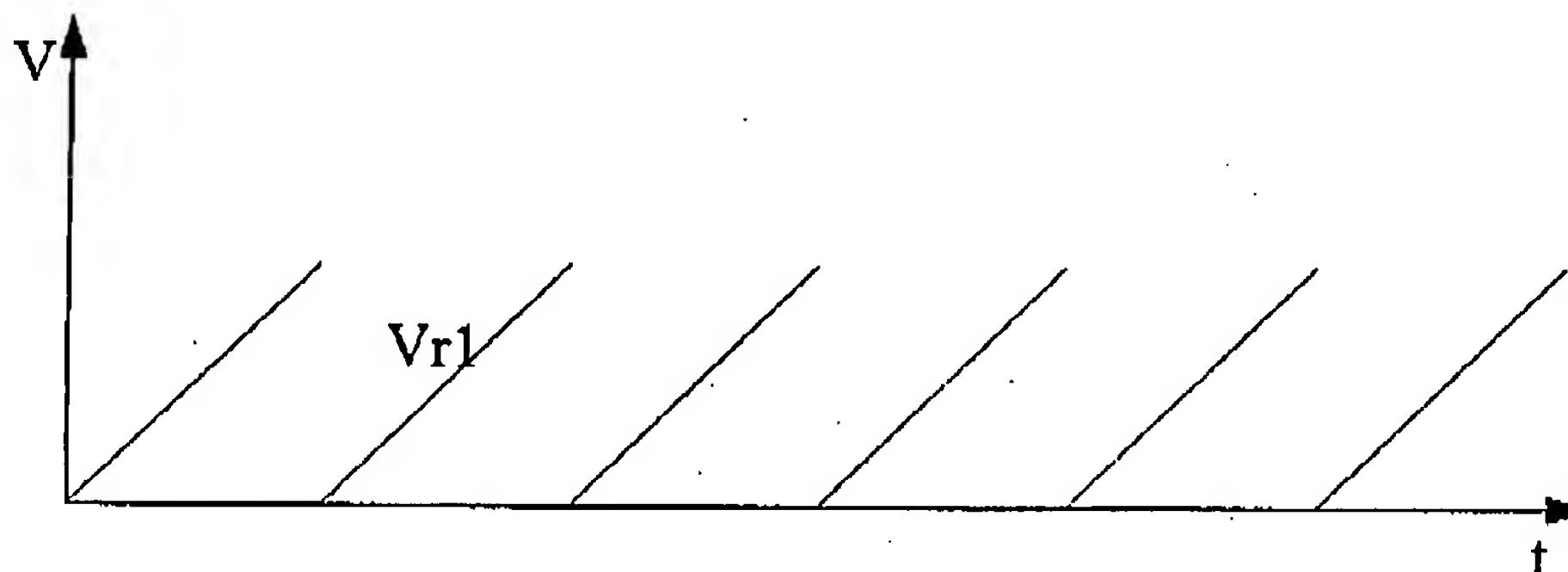
a triangle wave generator for generating a triangle wave
voltage signal;

wherein the triangle wave voltage signal has a plurality of
rising portions and a plurality of declining portions, and the
triangle wave voltage signal **only consists of odd harmonics** such

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that a percentage of high frequency harmonics of the triangle wave voltage signal is low;”

AAPA discloses that a current adjustment apparatus comprises a sawtooth wave generator 1, a field effect transistor 3, a power supply 7, and current limiting resistors 4, 5. The sawtooth wave generator 1 generates a sawtooth wave signal, which only has a plurality of rising portions (See FIG. 5). Examiner states since the signal is a ramp signal it inherently has declining portions. However, the sawtooth wave signal, as shown in FIG. 5, is reproduced below:



That is, the sawtooth wave signal rises from a lowest voltage (i.e., 0 voltage) to a highest voltage, and when the sawtooth wave signal achieves the highest voltage, it jumps to the lowest voltage synchronously such that there are not any declining portions between the highest voltage and the lowest voltage of any of the given voltage cycles. Thus, the sawtooth wave signal only has rising portions and has no declining portions. Therefore, AAPA fails to disclose or suggest that “the triangle wave voltage signal has a plurality of rising portions and a plurality of declining portions”, as recited in amended claim 1.

Furthermore, in amended claim 1, the triangle wave voltage signal is only composed of odd harmonics. The sawtooth wave signal disclosed

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in AAPA comprises both even harmonics and odd harmonics, as set forth in Paragraph [0004] of the specification. Therefore, AAPA fails to disclose or suggest that "the triangle wave voltage signal **only consists of odd harmonics** such that a percentage of high frequency harmonics of the triangle wave voltage signal is low", as recited in amended claim 1.

Applicants further submit that the novel physical features of amended claim 1 produce new and unexpected results over AAPA. Since the sawtooth wave signal generated by the sawtooth wave generator 1 in AAPA only has a plurality of rising portions and includes both even harmonics and odd harmonics (i.e., the sawtooth wave signal includes the considerable percentage of high frequency harmonics), the current adjustment apparatus in AAPA generates a pulse width modulation current signal having a considerable percentage of high frequency harmonics. Accordingly, the high frequency noise of the AAPA system is larger.

However, in amended claim 1, the triangle wave voltage signal generated by the triangle wave generator has the plurality of rising portions and **the plurality of declining portions**, and the triangle wave voltage signal **only consists of odd harmonics**. That is, the triangle wave voltage signal has a low percentage of high frequency harmonics. Therefore, the high frequency noise of the system decreases, and the stability of the output current from pulse width modulation current adjustment apparatus, as defined in amended claim 1, is higher.

Accordingly, amended claim 1 is submitted to be novel, nonobvious, and patentable over AAPA, taken alone or in combination with any other cited reference, under both 35 U.S.C. 102(b) and 35 U.S.C. 103. Reconsideration and withdrawal of the rejection and allowance of

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amended claim 1 are respectfully requested.

Amended claim 2 depends from amended claim 1. Therefore, Applicant submits that amended claim 2 is also novel, unobvious, and patentable over AAPA under both 35 U.S.C. 102(e) and 35 U.S.C. 103.

Amended claim 7 is a method of making a pulse width modulation current signal and has been particularly amended to essentially include the patentable elements discussed above with respect to amended claim 1. Accordingly, for reasons similar to those asserted above in relation to amended claim 1, Applicant submits that amended claim 7 is novel, unobvious, and patentable over AAPA, taken alone or in combination with any other cited reference, under both 35 U.S.C. 102(b) and 35 U.S.C. 103.

Amended claim 8 is a triangle wave generator used in a pulse width modulation current adjustment apparatus and also has been amended to essentially include the patentable elements discussed above with respect to amended claim 1. Thus, for reasons similar to those asserted above in relation to amended claim 1, Applicant submits that amended claim 8 is novel, unobvious and patentable over AAPA, taken alone or in combination with any other cited reference, under both 35 U.S.C. 102(b) and 35 U.S.C. 103.

35 USC §103 Rejections

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Figure 4 of AAPA.

Claims 3-6 should be allowable as being directly or indirectly dependent on independent claim 1, which is allowable for the reasons set

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forth above. Accordingly, claims 3-6 are submitted to be unobvious and patentable over AAPA, taken alone or in combination with any other cited reference, under 35 U.S.C. 103(a).

Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (US 3,621,282).

Firstly, Haas only has two figures, there is no Figure 4 in Haas, thus Applicant does not understand why the Examiner rejected claims 1 and 3-7 by using Figure 4 of Haas.

Next, Haas discloses a sawtooth generator for generating a sawtooth wave signal, which is essentially the same as that of AAPA (See FIG. 1 of Haas, to the right of the electrical schematic). Additionally, Haas fails to address what harmonics the sawtooth generator thereof are able to generate, beyond that which might be implied in the wave signal illustrated in FIG. 1. Accordingly, Applicants submit that Haas fails to disclose or suggest any aspects of the claimed invention beyond those discussed in AAPA. Therefore, Haas, in a similar manner to AAPA, also fails to disclose or suggest that "the triangle wave voltage signal has a plurality of rising portions and a plurality of declining portions, and the triangle wave voltage signal only consists of odd harmonics such that a percentage of high frequency harmonics of the triangle wave voltage signal is low", as recited in amended claim 1.

Accordingly, claim 1 is submitted to be unobvious and patentable over Haas, whether taken alone or in combination with any other cited reference, under 35 U.S.C. 103(a).

Amended claims 3-6 should be allowable as being directly or indirectly dependent on independent claim 1, which is allowable for the

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reasons set forth above. Accordingly, claims 3-6 are submitted to be unobvious and patentable over Haas, whether taken alone or in combination with any other cited reference, under 35 U.S.C. 103(a).

Amended claim 7 is similar to claim 1. For reasons similar to those asserted above in relation to amended claim 1, Applicant submits that amended claim 7 is unobvious and patentable over Haas, whether taken alone or in combination with any other cited reference, under 35 U.S.C. 103(a).

Conclusion


Therefore, all of the objections and rejections are believed to be overcome, and withdrawal of such is respectfully requested.

In view of the foregoing, the present application as claimed in the pending claims is considered to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,

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